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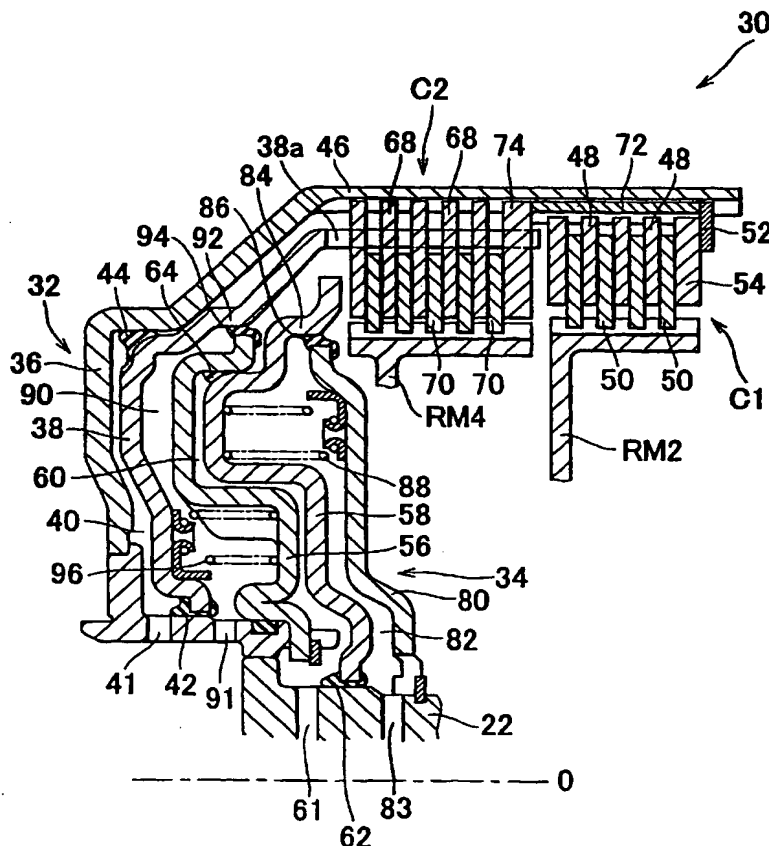
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(54) Title: DUAL CONNECTING AND DISCONNECTING APPARATUS



(57) Abstract: A cylinder tube (56) of a second hydraulic cylinder (34) is provided separate from a piston (38) of a first hydraulic cylinder (32) and integrally fixed to an input shaft (22). Friction members (48) and (50) of a first clutch (C1) and friction members (68) and (70) of a second clutch (C2) are prevented from moving in a first direction by a snap ring (52) attached to a connecting drum (46). The friction members (48) and (50) of the first clutch (C1) are friction engaged by the piston (38) and the friction members (68) and (70) of a second clutch (C2) are friction engaged by a piston (58).

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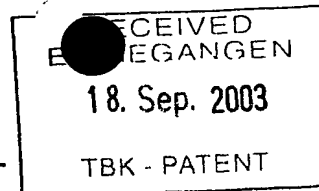
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PATENT COOPERATION TREATY

PCT



INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference WO 37794	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/IB 03/02326	International filing date (day/month/year) 17/06/2003	(Earliest) Priority Date (day/month/year) 18/06/2002
Applicant TOYOTA JIDOSHA KABUSHIKI KAISHA		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.
☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

3

☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A cylinder tube (56) of a second hydraulic cylinder (34) is provided separate from a piston (38) of a first hydraulic cylinder (32) and integrally fixed to an input shaft (22). Friction members (48) and (50) of a first clutch (C1) and friction members (68) and (70) of a second clutch (C2) are prevented from moving in a first direction by a snap ring (52) attached to a connecting drum (46). The friction members (48) and (50) of the first clutch (C1) are friction engaged by the piston (38) and the friction members (68) and (70) of a second clutch (C2) are friction engaged by a piston (58).

INTERNATIONAL SEARCH REPORT

International Application No

PCT/1 /02326

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F16H63/30 F16D25/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F16H F16D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ✓	US 6 382 382 B1 (COWAN RONALD THOMAS ET AL) 7 May 2002 (2002-05-07) column 3, line 29 -column 4, line 12 figure 1	1,2,7,8
P,X ✓	US 2002/117356 A1 (WITTKOPP SCOTT HENRY) 29 August 2002 (2002-08-29) paragraph '0009!; figure 1	1,2,7,8
A ✓	US 5 913 397 A (KONAGAYA FUMIHITO ET AL) 22 June 1999 (1999-06-22) the whole document	1-8
A ✓	US 5 662 198 A (KOJIMA YOICHI ET AL) 2 September 1997 (1997-09-02) column 4, line 52 -column 6, line 43 figures 5-10	1-8

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

In relation on patent family members

International Application No

PCT/1 2/02326

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6382382	B1	07-05-2002	NONE
US 2002117356	A1	29-08-2002	NONE
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